



USB Virtual Desktop Kit (Model U170) with vSpace™



User Guide

This guide applies to all Microsoft® Windows versions of our product. Specific information about our Linux versions may be found at <http://ncomputing.com/support.aspx>



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Please refer to the End User License Agreement (EULA) and Terms of Use (TOU) that are presented for your review during the software installation process. The information contained in these documents is very important. The EULA and TOU constitute agreements between you and NComputing and are accepted by you by installing and using the product. It is your responsibility to print a copy of the EULA and TOU directly from the installer in order to keep for your records.

This product gives users shared access to computer resources. It is not a computer, and may not support all software applications, especially high-resolution graphics applications or 3D games that are designed to be supported by stand-alone computers. Similarly, it may not support all hardware peripherals that are designed to be supported by stand-alone computers.

Refer to your computer operating system and application software vendors’ license agreements for information on using these products with NComputing systems. Additional software licenses may be required.

Microsoft Windows Licenses. You are licensed by NComputing to use the vSpace software under the terms of the EULA. You must also acquire the appropriate number of Windows Server licenses and Client Access Licenses for each device or user accessing Windows Server software. You cannot use the vSpace software with Windows Client software (i.e., Windows Vista, Windows 7) unless a single user and no other user accesses the same Windows Client software at any one time, or you are authorized to do so under an applicable license from Microsoft or as expressly set forth in the “Microsoft Windows Server to Windows XP License Rights” section of the NComputing EULA. In all cases, your rights and obligations with respect to the use of vSpace software with Windows Server software and Windows Client software are defined by both the NComputing vSpace software EULA and the applicable Microsoft Software License Agreement or EULA. For more information on licensing with Microsoft operating systems see: www.ncomputing.com/mslicensing

The NComputing hardware and software products described in this user manual are protected by numerous granted and pending U.S. and international patents.

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Safety information

Refer to the following to prevent any physical injury or loss of assets caused by damage to the product.

A user must read this User Guide carefully before use and properly follow the instructions.

- Make sure that the place of installation is not too hot (above 35°C), too cold (below 0°C), or too wet (above 85% relative humidity).
- Avoid any severe impacts to the product
- Make sure that the product is not exposed to direct sunlight or any hot machinery.
- Please keep the product away from any items which have strong magnetic properties.
- Do not disassemble, repair or rebuild the product.

Note: Please properly route all cables and power cords to avoid a tripping hazard. An electric shock, fire, damage to the product or physical injury may occur as a result of tripping over the cable.

Regulatory compliance

FCC information

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and the receiver
- Connect the equipment to a power outlet on a circuit different from which the receiver is connected
- Consult your dealer or an experienced radio TV technician for help

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment

This device complies with part 15 of the FCC Rules.

Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and**
- (2) This device must accept any interference received, including interference that may cause undesired operation.**

KCC certification information

NComputing U170



NCC-U170(B)

- 1.기기의명칭(모델명): USB-based Expansion kit (U170)
- 2.인증받은 자의 상호: 엔컴퓨팅 주식회사
- 3.제조자/제조국가: Magic Control Technology Corporation/대만
- 4.제조년월: 제품 참조

Product overview

The NComputing U170 kit enables users to dramatically cut computing costs by sharing the untapped power of existing computers. The U170 access device and NComputing vSpace software work together to efficiently harness excess computing capacity and enable multiple users to share a single computer. And each user gets the full performance and capability of a PC, including multimedia and video. Best of all, IT staff and end users do not need special training because the solution is easy to setup and is compatible with standard PC software.



Connect one user per kit or a total of 10 users per host machine

With the NComputing U170, each user still has a standard monitor, keyboard, mouse, and speakers (sold separately). However, instead of connecting directly to the PC, these peripherals connect to the U170 access device on their desk. These very small, solid-state devices connect with USB cables and optional USB 2.0 hubs to the shared PC. The distance between the access device and the shared computer can be a maximum of 20 meters (66 feet) following standard USB 2.0 specifications on cables and hubs. The U170 can also be easily attached and secured to the back of a display with the built-in VESA mount option.

The NComputing vSpace desktop virtualization software (included) divides the PC's resources into independent virtual workspaces that give each user their own full PC experience. vSpace simplifies configuration by automatically assigning the keyboard, mouse, audio and any USB devices attached to each workstation. There is even an auto-login feature that can be set to automatically login a user making the U170 a great product for kiosks, schools, kids, and digital signage applications.

Minimum system requirements

Host computer

For multiuser applications the host computer operating system can be Windows Server 2003 R2 SP2 (Standard or Enterprise Edition, 32-bit), Windows Server 2008 SP2 (Standard or Enterprise, 32-bit). For more information Microsoft licensing please see the Important Notices section at the beginning of this document.

Almost any modern PC may be used to host NComputing vSpace software. The guidelines below are a good rule of thumb for determining how many users you can expect to have a native experience running general productivity software applications.

U170 minimum recommended hardware

Users	CPU	Memory
1-3	2.4 GHz or any dual core	1 GB
4-7	3.0 GHz or any dual or quad core	1 – 2 GB
8-10	3.0 GHz or any dual or quad core	2 or more GB

Note: The U170 requires USB 2.0 controller(s) for operation. In addition, some older PCs may have difficulty booting with U170 devices (or other high-speed USB audio devices) when attached. In these cases, you may need to boot the computer first, then attach the USB cable. This problem can sometimes be resolved by installing a separate USB 2.0 PCI card into the PC.

The table below describes the maximum bandwidth of the USB bus for modern PC motherboards. Some PCs may contain multiple EHCI controllers that can double or triple the available bandwidth. These systems will have better video performance when running more than 4 U170 devices on a PC. To take advantage of multiple controllers, connect any downstream hubs back to the PC directly rather than connecting all U170s downstream of one USB connection. Adding an additional USB controller card to a PC is also an option for large deployments.

Vendor	Chip Set	USB or EHCI controllers	Maximum Bandwidth
AMD	SB710	2	120 MB/s
Broadcom	HT1100	3	180 MB/s
Intel	ICH8	2	120 MB/s
Intel	ICH9	2	120 MB/s
Intel	ICH10	2	120 MB/s
nVIDIA	ION Series	2	120 MB/s

* Note: This is NOT a comprehensive list of chip set that have more than one USB bus.

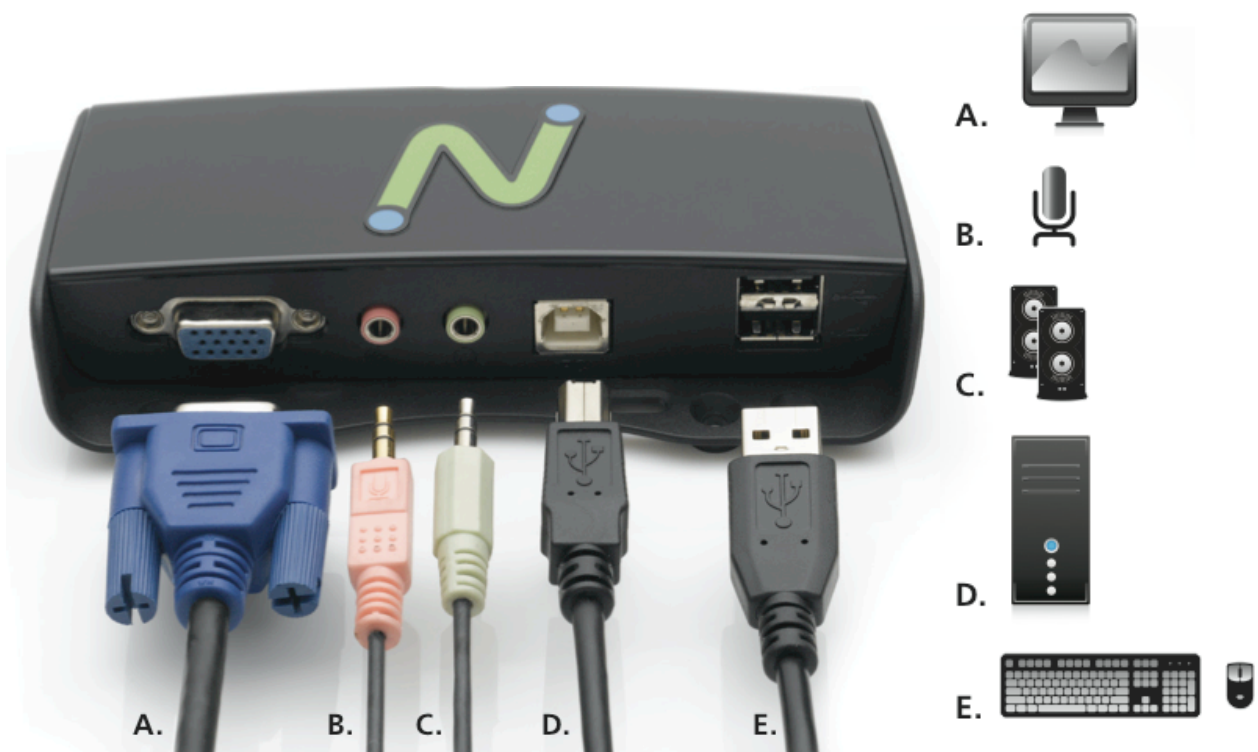
Access devices

For each U170 station you will need:

- USB keyboard and mouse
- Monitor (resolution support below)
- Optional: speakers, headphones, and/or microphone with mini stereo connector
- Optional: USB devices and USB cables (connect directly to host PC and can be assigned to each station via the vSpace software)

Install the hardware

Connect peripheral devices



The U170 has two USB 2.0 connectors to support USB devices. These ports may be used in the following ways:

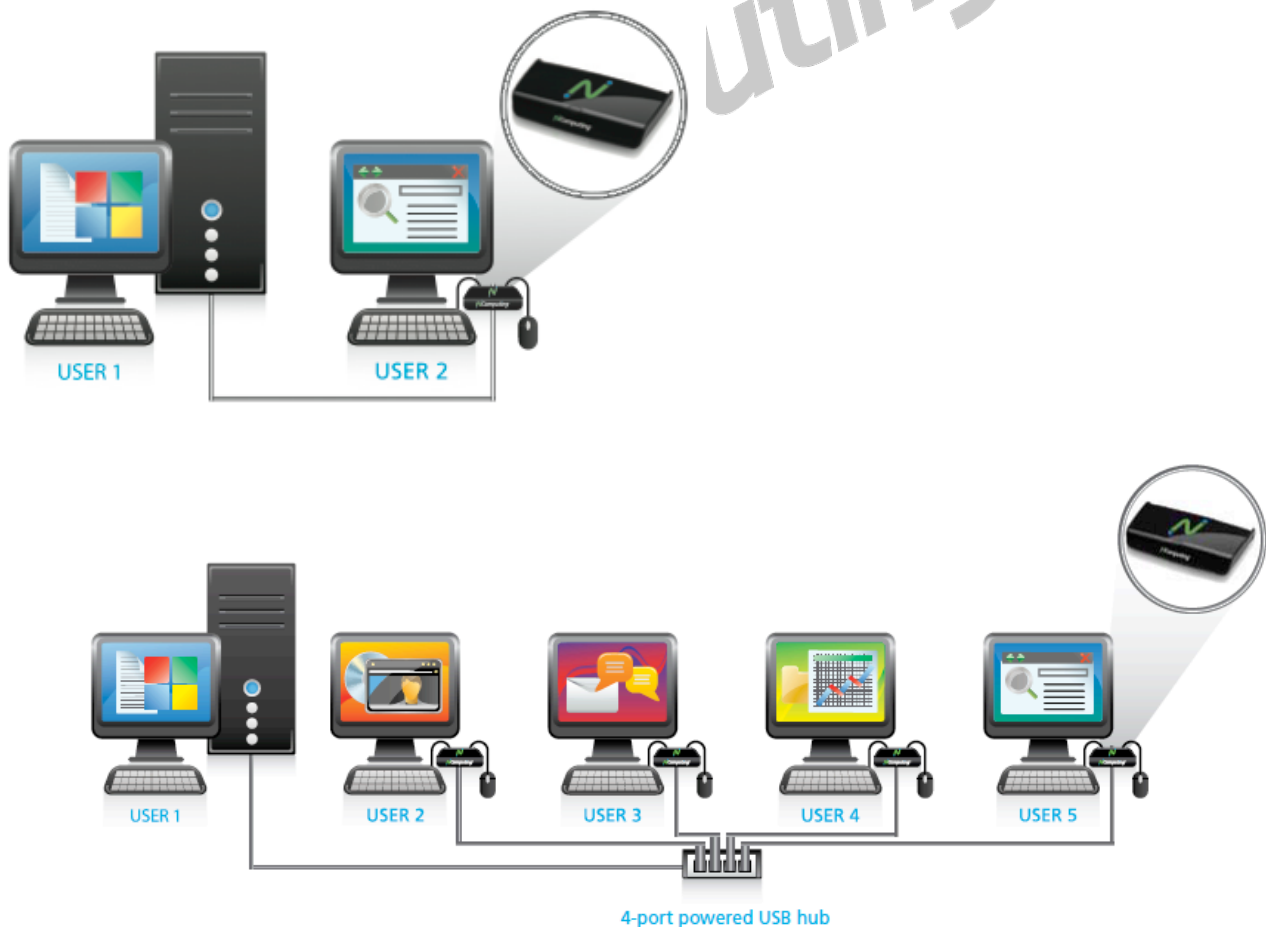
- USB Keyboard and Mouse
- Wireless Keyboard Adapter and an accessory port
- A separate USB Hub to support additional USB accessories

Note: USB devices (ex. Flash memory stick) connected downstream of a U170 will be assigned to the session logged in to that U170 device.

Note: The U170 device is powered by the USB bus and a single USB port can provide power for only one U170 device with a mouse and keyboard. Adding additional USB devices immediately downstream of the U170 that draw too much power is likely to cause errors. Using a powered USB hub downstream from a U170 for high power peripherals is recommended.

Connection options

The U170 may be attached to a PC through any USB 2.0 compliant connection method. This includes the use of USB 2.0 hubs, USB 2.0 extension cables, and USB 2.0 active extenders. Each segment of a USB connection from device to host, device to hub, or hub to hub, must be no longer than 5 meters. The USB 2.0 specification states that a total of 4 hubs may be used downstream of a PC before the U170 device itself. Because the U170 is dependent on USB bus power, a powered hub should always be used directly upstream of a U170 when not directly attached to a PC.



Note: Performance may be impacted by poor quality cables or hubs. We recommend USB 2.0 certified cables with minimum wires sizes of AWG 24 (power) and 28 AWG (signal). (Note, the higher the number the smaller the wire.)

Mounting and security

Using two screws (provided) you can attach the XD2 to the back of an LCD monitor that has VESA compliant mounting holes as shown below. To secure the U170 device, a slot has been provided in between the mounting screw holes to permit a security cable to be attached.



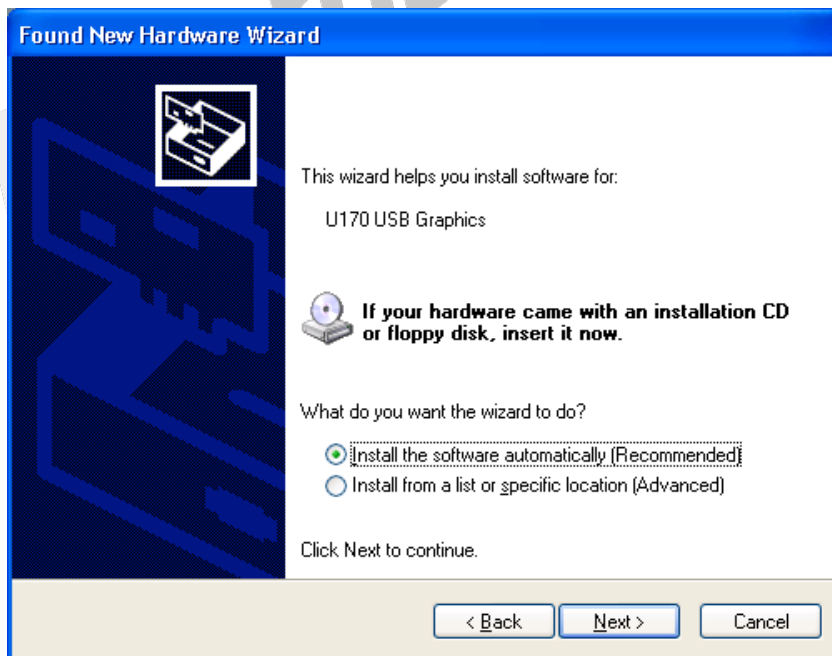
NComputing vSpace software installation

Installation of the vSpace software is straightforward and simple.

1. Insert the CD. It will autostart and present a menu of options. Choose “Install vSpace Software.”
2. Follow the directions in the install wizard to complete the software installation.
3. Reboot the system
4. Connect U170 devices to the PC
5. The windows operating system will discover the new devices and ask “Can Windows connect to Windows Update to search for software?” Select “No, not this time.” (Note: USB discovery can take some time and during the FIRST install only and you will be asked to repeat this discovery for each U170 connected to the PC. If installing multiple devices, please be patient during the discovery process.)



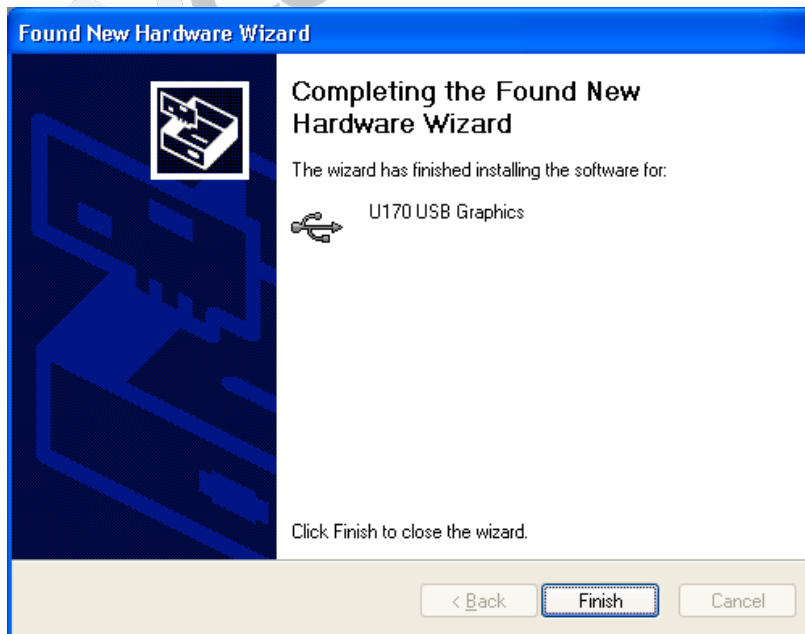
- The next screen in the hardware wizard will show that the operating system has identified the U170 device and will ask “What would you like the wizard to do?” Choose “Install the software automatically [Recommended]”



- The next screen of the hardware installation wizard is a warning. Press, “Continue Anyway”



- You have now completed the hardware installation wizard, press finish to continue.



- You will repeat these steps for each U170 device connected to the system.

Note: The Display on the host system will flash on and off during the video driver installation. It will repeat this for each new U170 being installed.

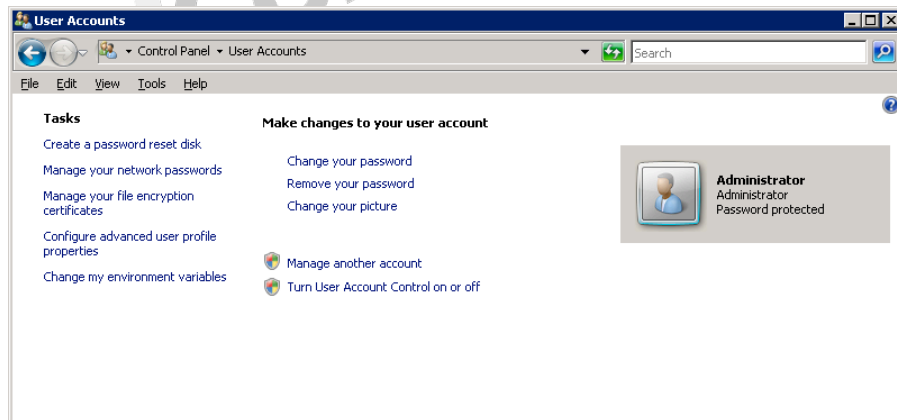
User setup

There are two options for setting up users on a multiuser system:

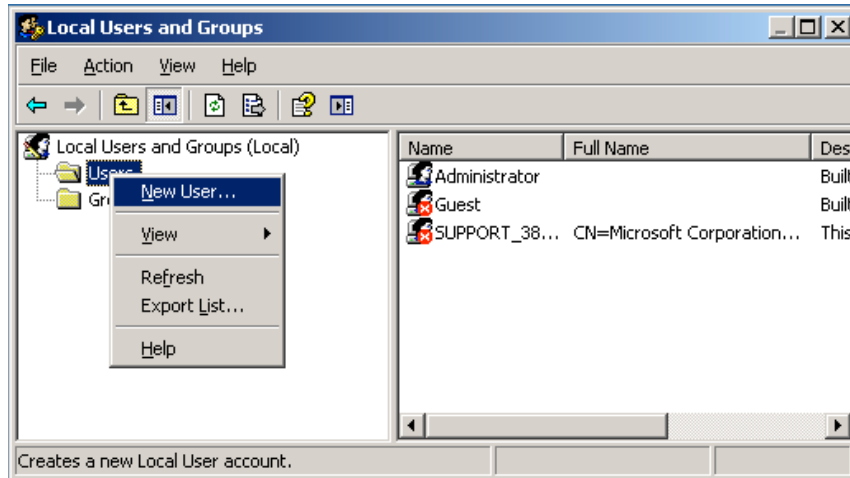
1. Local Users: for small installations, you can use the user management tool in Microsoft to add local users.
2. Workgroup or Domains: If there is already a workgroup or domain in use on the network, simply join the computer to that workgroup or domain and any users already existing may use the new system.

Note: Users must be joined to the “Remote Access” group in a multi-user system. The screens below show where to find the user management and group management tools to setup new users.

To add new users go to Start→Settings→Control Panel→User Accounts. You can also search on “To add a new user to the computer” in the Windows Help and Support Center for more information.



Windows Server 2008 user account management screen



Windows Server 2003 user account management screen

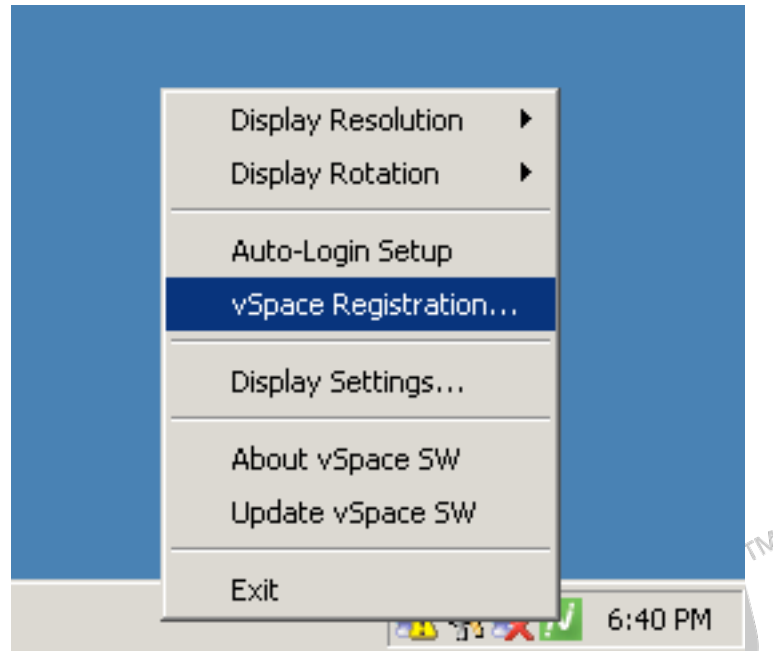
Product registration

The U170 USB virtual desktop and vSpace software that you install on a computer must be registered with NComputing. Prior to registration, user sessions will be limited to 60 minutes before timing out and requiring a reboot of the system.

Registration is fast, easy and can be accomplished two ways:

1. Online Registration
2. Offline Registration

The Registration Wizard may be found on both the System Tray and in the start menu under "NComputing vSpace Software"



Online registration

If the PC where you have installed vSpace software has a connection to the internet for http and https, simply follow the registration wizard to:

1. Fill out your registration information.
2. Automatically discover the device serial numbers connected.
3. Then connect to the NComputing registration service .
4. If selecting this option, you may choose to enable “Background Registration” so that any time you install a new U170 to the system, the Registration Wizard will discover and register the product with your information without any user intervention.

Offline registration

If the PC where you have installed the U170 does not have access to the internet, you can still register the product. Simply:

1. Use the Registration Wizard and select “Offline Registration.”
2. The system will still automatically discover the connected devices, but will then allow you to save a registration file.
3. Place this file in a location where you can access it with an email client. This may be on a flash disk if required.
4. Then send the file to registration@ncomputing.com where the request will be processed and a registration file will be sent back to you in email.

5. Once you have the returned file, restart the Registration Wizard and select “Complete Offline Registration”.

PC upgrade or card migration to another PC

The registration process assigns your vSpace software license and U170 virtual desktop to the specific host PC in which they are installed. If you change or upgrade multiple components on your PC, such as the hard drive and operating system or if you move to another PC, you will need to re-assign your license to the new host PC configuration. When making such a change, simply repeat the online or offline registration process. ***You can reassign your license in this way a few times after your initial registration. If you exceed this limit you will need to contact NComputing technical support.***

Uninstallation

To uninstall the vSpace software, select “Uninstall vSpace” from the “Start” menu. Follow the prompts and the vSpace software is removed from the host PC. You will be prompted to restart the host PC to complete the process.

vSpace software updates

Once you have successfully completed the registration process, you can update the software directly over the Internet by selecting “Update vSpace” from the “Start” menu or from the System Tray menu. (Provided those updates for which you may be entitled to are available).

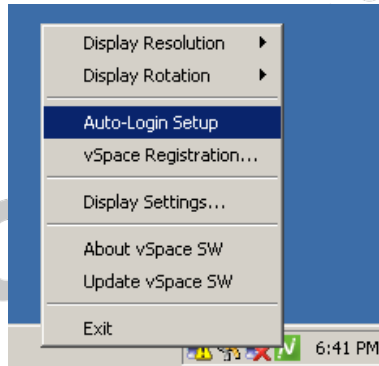
Additional features

Auto login

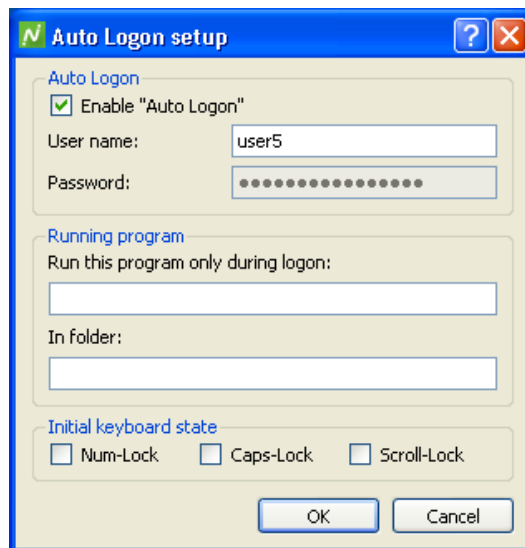
NComputing vSpace software has a convenient Auto-login feature popular in schools, kiosks, or digital signage applications. If enabled, once a computer boots, each U170 station will automatically login using the username and password set. Additionally, a launch application or script may be specified to run at login.

To enable the Autologin feature:

1. Click on Autologin setup



2. Enter the username and password you wish to use; the password will not be displayed in clear text. (Note a blank password can be used, to do this simply place the cursor into the password file (make no entries) and then press OK)



3. Click the checkbox to “enable”

The “Running Program” fields can be used to designate a single application to be displayed without the underlying windowing system. This may be used for kiosk or digital signage applications.

Troubleshooting guide

No graphics are displayed of a U170 station

If there is nothing being displayed on a U170 station check the following:

1. Is the blue light on the U170 on? If not, the device has not yet been enumerated to the PC. This could take up to 10-20 seconds if this is the first time connecting.
2. If the blue light is not on check to make sure the unit is plugged in to a USB 2.0 port. If connecting to a hub, make sure the hub is powered.
3. If the display is “gray” it is possible that you have not registered the device and it is timed out. Run the registration wizard.

PC will not boot after attaching U170 virtual desktop

Some older PCs have difficulty with USB 2.0 composite devices. There are two potential ways to solve 1) attach the U170 after booting, 2) try a separate USB PCI card 3) disable legacy USB support in the BIOS.

U170 will not register

Run the registration wizard, when the system scans and lists all of the connected U170 devices make sure the serial number of each device is displayed. If not, try unplugging and re-plugging the U170 device, wait for enumeration and press refresh. In some rare cases, it may be necessary to unplug the display connected to the U170 when registering devices.

Sound does not play

We setting up multiple U170 for the first time there are MANY items for the PC to discover and the host may not enumerate all devices correctly the first time. Therefore a double reboot is advised to ensure all devices are enumerate properly (needed only after new devices are added).

Extended boot time to the OS

When multiple U170's are connected to the host the normal boot time will be extended some for each unit added. Remember the OS and PC is supporting that many more users.

For more troubleshooting information visit the NComputing knowledge base in the support section of the NComputing website at www.ncomputing.com

Glossary

Administrator: a person who is responsible for managing a multi-user computing environment, such as a local area network (LAN). Administrator responsibilities typically include: installing and configuring system hardware and software; establishing and managing user accounts; upgrading software; and backup and recovery tasks.

Download: the network transmission of a file from one computer system to another.

Firewall: a set of related programs that protect the resources of a private network from users on other networks and control what outside resources local users have access to.

Host PC: a computer in which the vSpace software has been installed

Internet: a worldwide system of computer networks in which users at any one computer can, if they have permission, get information from other connected computers (and sometimes talk directly with users at other computers).

Log on: Logon is the procedure by which an entity (person, program, or system) exchanges credentials with an operating system or application in order to be allowed access to the OS or application. Almost always, a logon requires that the user have (1) a user ID and (2) a password. Often, the user ID must conform to a length requirement such as eight characters or more, and the password must contain at least one digit and not match a natural language word.

User: one who uses a computer system. Users need to identify themselves to be able to access the computer system. In order to ensure unique identities, the system administrator usually assigns each user a username associated with a defined set of computer resources.

USB: (Universal Serial Bus) is a standard designed to allow peripherals to connect and identify themselves a computer via a standardized interface socket. USB allows devices to connect and disconnect from a computer without the forcing the computer to be restarted.